

WHAT IS CLAIMED IS:

1. A method for determining a solution to a set of constraints, comprising:
generating a graph data structure representation, comprising one or more
5 nodes, each node having an associated range;
identifying a first plurality of bit-slice constraint nodes, each selecting from
a range of bits of a first variable;
converting the first plurality of bit-slice constraint nodes into a second
plurality of bit-slice constraints, wherein none of the bit-slice constraints, of the
10 second plurality of bit-slice constraints, select a range of bits that overlaps with a
range of bits selected by any other of the bit-slice constraints;
generating a value for the first variable that satisfies the second plurality of
bit-slice constraints.
- 15 2. The method of claim 1, wherein the step of converting comprises:
indicating, in relation to the first variable, two marking bits for each node of
the first plurality of bit-slice constraint nodes.
- 20 3. The method of claim 2, wherein the step of converting comprises:
identifying a bit range, of the second plurality of bit-slice constraints, as
being denoted by a first marking bit and a second marking bit, wherein a third
marking bit is not in-between the first marking bit and the second marking bit.
- 25 4. The method of claim 1, wherein the step of generating comprises:
selecting a value from a range determined for each bit-slice constraint of
the second plurality of bit-slice constraints.
- 30 5. The method of claim 4, wherein the step of generating comprises:
concatenating each value selected from the range determined for each
bit-slice constraint of the second plurality of bit-slice constraints.

6. A method for evaluating bit-slice nodes in a word-level network,
comprising:

generating a graph data structure representation, comprising one or more
nodes, each node having an associated range;

5 identifying a first plurality of bit-slice nodes, each selecting from a range of
bits of a first operand;

converting the first plurality of bit-slice nodes into a second plurality of
bit-slice selectors, wherein none of the bit-slice selectors, of the second plurality
of bit-slice selectors, select a range of bits that overlaps with a range of bits

10 selected by any other of the bit-slice selectors;

determining a first range of values, for the first operand, that satisfies the
second plurality of bit-slice selectors.

7. A computer program product comprising:

15 a computer usable medium having computer readable code embodied
therein for evaluating bit-slice nodes in a word-level network, the computer
program product including:

computer readable program code devices configured to cause a computer
to effect generating a graph data structure representation, comprising one or
20 more nodes, each node having an associated range;

computer readable program code devices configured to cause a computer
to effect identifying a first plurality of bit-slice nodes, each selecting from a range
of bits of a first operand;

computer readable program code devices configured to cause a computer
25 to effect converting the first plurality of bit-slice nodes into a second plurality of
bit-slice selectors, wherein none of the bit-slice selectors, of the second plurality
of bit-slice selectors, select a range of bits that overlaps with a range of bits
selected by any other of the bit-slice selectors;

computer readable program code devices configured to cause a computer
30 to effect determining a first range of values, for the first operand, that satisfies
the second plurality of bit-slice selectors.

8. An electromagnetic waveform comprising a computer program, the computer program for evaluating bit-slice nodes in a word-level network, the computer program comprising the following steps when executed by a data
5 processing system:

generating a graph data structure representation, comprising one or more nodes, each node having an associated range;

identifying a first plurality of bit-slice nodes, each selecting from a range of bits of a first operand;

10 converting the first plurality of bit-slice nodes into a second plurality of bit-slice selectors, wherein none of the bit-slice selectors, of the second plurality of bit-slice selectors, select a range of bits that overlaps with a range of bits selected by any other of the bit-slice selectors;

determining a first range of values, for the first operand, that satisfies the
15 second plurality of bit-slice selectors.